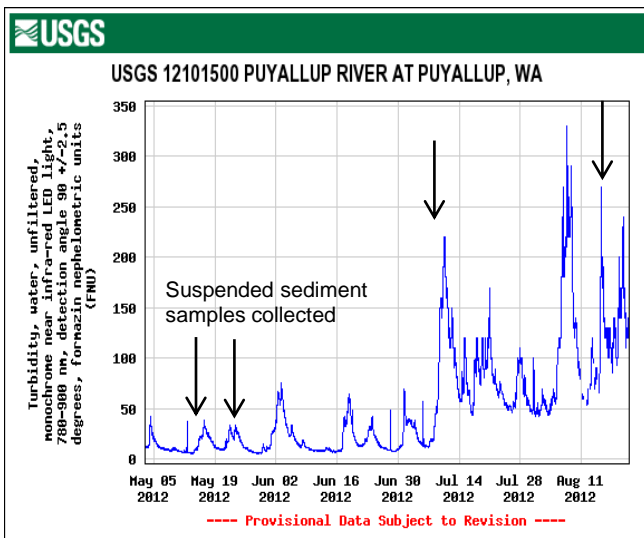


Assessing sediment loads and sediment-bound toxic chemical loads from large rivers to Puget Sound

High sediment transport rates are associated with high flows in Puget Sound rivers resulting from snowmelt, glacial melt, and storm events. However, the magnitude of the sediment load has not been quantified for many Puget Sound rivers, and the chemical load associated with sediments, as well as how it might vary over the year, are not known.

Scope of USGS Sediment Work:

- The USGS's Washington Water Science Center installed and is operating a continuous turbidity sensor at the Puyallup stream gage near the 66th Ave. bridge (USGS 12101500).
- We are collecting suspended sediment samples for concentration and particle size distribution throughout the year, focusing on high flow and/or turbidity events.

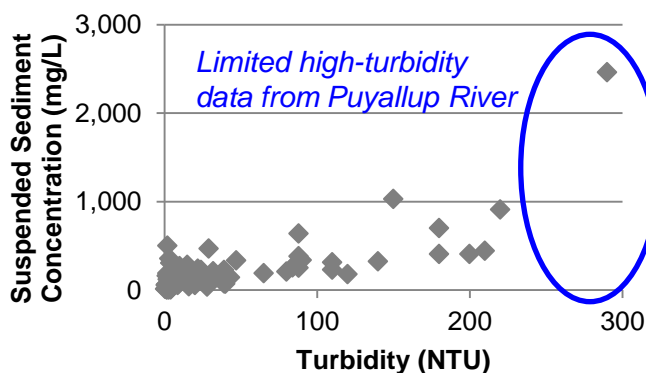


Outcomes:

- Develop regressions between turbidity and suspended sediment concentration to provide annual load estimates to Puget Sound
- Provide guidelines or protocols for effective monitoring strategies of sediment and associated chemical loads from a range of Puget Sound river sizes and characteristics
- Aid in assessing nearshore impacts:
 - Is there enough sediment to compensate for sea-level rise?
 - Impacts on nearshore habitat like eelgrass?
 - Are rivers a major source of toxic chemicals to the Puget Sound food web?

Web access:

<http://wa.water.usgs.gov/projects/riverloads/>
<http://acwi.gov/monitoring/network>



Scope of USGS Chemistry Work:

- We are collecting suspended sediment samples for chemical analysis using a continuous-flow centrifuge.
- Chemicals include: nutrients, polycyclic aromatic hydrocarbons (PAHS), polychlorinated biphenyls (PCBs), and polybrominated diphenyl ethers (PBDEs).



Flow-through centrifuge and bowl produces a concentrated suspended sediment sample

Collaborative opportunities exist to:

- Conduct concurrent sampling of fish, aquatic invertebrates, and bed sediment
- Expand suite of chemical analyses, sampling frequency, and/or sampling location
- Identify upstream contributions and variability, including groundwater recharge
- Assess sediment deposition patterns at river mouth
- Assess positive and/or negative impacts of sediment loads on nearshore habitat
- Identify entry into and potential bioaccumulation in the riverine and nearshore food webs

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